Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

Permit No. F-05-022 (R1)
THE HENNEGAN COMPANY
7455 EMPIRE DRIVE, FLORENCE, KY
March 14, 2007
ELAHE HOUSHMAND, REVIEWERS
Source I.D. # 21-015-00088
A.I. # 37191
Activity# APE20070001

Revision 1:
On February 12, 2007 DAQ received an application from The Hennegan Company for ownership change. Based upon the submittal, the new permittee (owner) name is Consolidated Graphics, Inc.

INITIAL PERMIT:
SOURCE DESCRIPTION:
Hennegan is located at 7455 Empire Drive, Florence, Kentucky. This facility is in the commercial lithographic printing industry. In lithographic printing, images are formed on a substrate using plates that differentiate image and non-image areas through physiochemical properties. In other words, plates treated so that certain areas of the plate tend to reject ink are used for printing. Fountain solutions help inks stay in the right spots on the plates.

The Hennegan Company began operation in Kentucky in 1986 with 1-6 color web press and was located in an ozone nonattainment area. Since then;

1. A 6 color web press and a 6 color sheet fed press were constructed at the source in 1991.
2. Five (5) sheet fed presses (1-8 colors, 3-6 colors, and 1-5 colors) were constructed at the source between May and December of 1996.
3. One (1) of the 6 colors sheet fed presses constructed in 1996 was traded for a new 8-colors sheet fed press in the last quarter of 1998.
4. The eight (8) colors sheet fed press constructed in 1996 was replaced while under manufacturer warranty with a new, nearly identical, 8 color sheet fed press in December 1999.
5. Construction on an 8 colors web press and a thermal oxidizer began around August 2001 after the area was re-designated to ozone attainment.
6. In June 15, 2004 Boone County (Source Location), was re-designated to ozone non-attainment area.
7. Upon issuance of this permit in September 2005, the 6-colors Sheet Fed Printing Press, **04SF**, and the 5-colors Sheet Fed Printing Press, **05SF,** will be removed and they will be replaced by **08SF,** a 12-colors Sheet Fed Printing Press.

The web presses at Hennegan use heatset inks. Heatset inks are applied, set by heat, and subsequently cooled by chiller rolls. Additionally, all of the three (3) web presses are controlled by one (1) RTO and the web presses have automated cleaning equipment.

The sheet fed presses at Hennegan use non-heatset inks. Absorption, oxidation, and UV radiation are used to set these inks. Heat and chiller rolls are not used on these presses. Additionally, these presses do not have automated cleaning equipment.

COMMENTS :

In the past, Hennegan was issued the following permits:

In 1986, permit C-86-201 was issued for press 01W.
In a 1990 letter, construction without a permit was allowed for press 02W.
In 1991, permit C-91-073 was issued for press 01SF.
In 1992, permit O-92-045 was issued for presses 01W, 02W, and 01SF.
In 1996, permit F-96-006 was issued for presses 03SF, 04SF, 05SF, and 06SF.
In a 1996 letter, construction without a permit was allowed for press 02SF.
In 1999, permit F-99-002 was issued for press 07SF.
In 2001, permit VF-01-001 was issued for press 03W.

Now, Hennegan is being issued a source-wide permit to operate three (3) web presses (01W-03 W) and to construct / operate five (5) sheet fed presses (01SF, 03SF, 06SF, 07SF and 08SF). This Conditional Major / Synthetic minor permit # F-05-022 will address all outstanding Hennegan's applications and will replace the pervious permits. The plant is classified as a Conditional Major source because it elected to have volatile organic compounds (VOCs) emissions below major source. The source is classified as a synthetic minor source because it has accepted conditions to limit VOC emissions below NSR (New Source Review) major source and major modification quantities.

The source must demonstrate compliance with the following VOC limits:

- The total of VOC emissions from sheet fed presses (01SF, 03SF, 06SF, 07SF and 08SF) is limited to no more than 36 tons/yr.
- The total of VOC emissions from web presses (01W-03W) is limited to no more than 54 tons/yr.

These limits are to demonstrate that VOC emissions shall not exceed ninety (90) tons during any consecutive twelve (12) month period.

Type of control and efficiency:
A regenerative thermal oxidizer (RTO) is used to control emissions from the web presses. The RTO has been installed to control VOC emissions from the web press ovens. On August 21, 2002, control efficiency of the RTO was determined by stack testing to be on average 97.8% for all VOC emissions entering the control device. The permit limit is 90%.

Guidance found in the Draft CTG document Control of Volatile Organic Compound Emissions from Offset Lithographic Printing and the ACT document Offset Lithographic Printing was used to estimate the capture efficiency that would be realized for all VOC emissions from the web presses. Based on the guidance, 100% of the VOC emissions from the heatset inks will be captured to the control device if the ovens maintain negative pressure. 40% capture will be realized on the automatic cleaning solution emissions. And, 70% capture will be realized on the web fountain solution emissions. Alternative capture efficiency estimates may be used if the source wishes to determine the capture efficiency through testing.

Fountain solutions will not contain alcohol. By using alcohol substitutes in the fountain, VOC emissions are reduced. Some of the fountain emissions will be controlled (control efficiency is described above).

Manual cleaning materials will have a vapor pressure below 10 mm Hg and will be stored in closed containers. Through these measures, the Division estimates that 50% of the VOCs used can be prevented from becoming emissions. This emission prevention is based on the above EPA guidance.

Automatic cleaning material emissions are not assumed to be preventable. However, some of the automatic cleaning emissions will be controlled (control efficiency is described above).

Emission factors and their source:
The ovens use natural gas to directly heat the webs. The emission factors for the natural gas combustion are based on AP-42 emission factors for small boilers.

Particulate emissions from the web presses have been assumed to be minimal as long as the presses are operated properly, appropriate inks are used, and natural gas is burned in the ovens. This is based on the Method 5 test performed April 6 and 7, 1976 at a web press used by Danner Press located in Canton, Ohio.

Particulate emissions from the sheet fed presses have been assumed to be minimal since the press is not vented to the atmosphere (other than the general building ventilation).

VOC emission factors for the press will vary. The emission factors are based on EPA guidance (most of them are found in the Draft CTG document Control of Volatile Organic Compound Emissions from Offset Lithographic Printing). Alternative emission factors may be used by the source if testing is performed and approved by the Division prior to their utilization.

VOCs contained in the web inks and varnishes used will have an 80% emission factor (some VOCs are believed to be retained in the web).

VOCs contained in the sheet fed inks and varnishes used will have a 5% emission factor (most of the VOCs are believed to oxidize, otherwise react chemically to become nonvolatile, or remain in the paper).

VOCs contained in other coatings used will have a 100% emission factor.

VOCs contained in fountain solutions used will have a 100% emission factor and no VOCs will remain in the waste fountain solutions.

VOCs contained in automatic cleaning materials used will have a 100% emission factor.

VOCs contained in manual cleaning materials used will have a 50% emission factor because approximately 50% of the cleaning material will remain in the cleaning rags. As long as the rags are enclosed, the VOCs are not emitted.

Applicable Regulations:
401 KAR 50:012, General application, will apply since the source is potentially major for VOC and no regulations specifically apply to offset lithographic printing. Regulation 401 KAR 50:012, General application, requires control procedures that are reasonable and available to be applied. The Division has determined what these procedures should be based on the presumptive norm established by EPA. To establish the RACT requirements for this facility, a public hearing was held on November 10, 1998 at 7:00 PM in the Fiscal Courtroom at 2950 Washington Street, Burlington, Kentucky, 41005.

Requirements resulting from application of 401 KAR 50:012 are:

No alcohol shall be used in fountain solutions.
Fountain solutions applied shall contain less than 5% VOC by weight.
Cleaning solutions shall have a vapor pressure < 10 mm Hg.
Cleaning solutions, including used solvent laden towels, shall be stored in closed containers.
Control efficiency on VOCs in the dryer exhausts shall be at least 90%.

Applying all of the above mentioned controls would allow the source to comply with the VOC emissions synthetic minor limit of 90 TPY.

Per 401 KAR 50:012 Section (5), except as provided by 401KAR 50:055, nothing in these administrative regulations shall allow a source remove control equipment or discontinue procedures previously required in a nonattainment area to achieve the national air quality standards until a state implementation plan containing different requirements has been approved by the U.S. EPA.

See the permit for additional details of 401 KAR 50:012 requirements.

Regulation 401 KAR 59:010, New process operations, will apply since the affected facilities commenced after July 2, 1975. Application of the regulation will cause little impact on this source since particulate emissions from the processes are minimal.

Regulation 401 KAR 51:052, Review of new sources in or impacting upon nonattainment areas, applies to new major sources or major modifications commenced after September 22, 1982 located in a nonattainment area. This regulation has been determined by the Division to not be applicable due to limitations to be imposed on the source.

Regulation 401 KAR 51:017, Prevention of significant deterioration of air quality, applies to major sources or major modifications commenced after September 22, 1982 located in an attainment area. Since the source is located in a nonattainment area, 401 KAR 51:017 does not apply. However, press 03W was constructed when the area was attainment. 401 KAR 51:017 was evaluated for applicablity at the time and was found not to apply. Potential VOC emissions prior to construction of press 03W were below major source status and construction of press 03W was not a major modification.

PERIODIC MONITORING:

No monitoring is required for compliance with mass and opacity standards applicable to the presses since presses like these that are operated and maintained consistent with manufacturer recommendations will always comply with the limits.

The pressure of the operating dryer will be monitored. As long as the dryer is operated at negative pressure relative to the surrounding pressroom, the capture efficiency for VOC from the inks and varnishes (coatings) is assumed to be 100 percent.

RTO temperature will be monitored continuously to demonstrate the control efficiency actually achieved on the VOC emissions.

To demonstrate the VOC content of fountain solutions to be used on the presses the permittee will have to keep track of total fountain material quantities used through record keeping.

Storage of wash solvents shall be monitored daily to verify that used and unused portions are in closed containers. This degree of monitoring should be a sufficient reminder to personnel of the operating limitation. It would be impractical to require continuous monitoring of wash solvent storage.

EMISSION AND OPERATING CAPS DESCRIPTION:

For any 12 consecutive month periods, Hennegan shall keep the following limits:

1. The permit limit of 90 tons of volatile organic compounds (VOC).
2. The web presses shall be less than or equal to 54.0 tons of volatile organic compounds (VOC) as demonstrated on a monthly basis.
3. The sheet fed presses shall be less than or equal to 36.0 tons of volatile organic compounds (VOC) as demonstrated on a monthly basis.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or record keeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.